

REMARKS

Claims 1, 5-41, 52, 55-63, and 71-78 are pending in the application. Applicant expresses appreciation for the allowance of claims 1, 5, 8-11, 13-41, 52, 55, 57-63, and 71-78.

Claims 6, 7, 12, and 56 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Park (U.S. Patent No. 5,774,327) in view of Bhattacharyya (U.S. Patent No. 6,800,892). Applicant requests reconsideration.

Claim 6 sets forth a capacitor construction that includes, among other features, an insulative nitride layer between a first electrode and a surface supporting the capacitor construction, a capacitor dielectric over the first electrode, and a second electrode over the capacitor dielectric. Page 3 of the Office Action alleges that Park discloses every limitation of claim 6. Applicant traverses the rejection. Page 3 also states that Park lacks a memory cell and relies upon Bhattacharyya as allegedly disclosing a memory cell. However, claim 6 does not set forth a memory cell.

Page 3 of the Office Action alleges that diffusion barrier layer 31 of Park discloses the claimed insulative nitride layer. Diffusion barrier layer 31 shown in Fig. 6 is patterned along with other layers to form diffusion barrier layer 31A, a part of capacitor cell units shown in Figs. 7-10. As discussed in column 4, line 58 to column 5, line 24 of Park, diffusion barrier layer 31/31A is formed between polysilicon plug 28 and first electrode layer 32/32A. Plug 28 provides an electrical connection between pad electrode 24 and first electrode 32/32A. Since diffusion barrier layer 31/31A is formed between

plug 28 and first electrode 32/32A, diffusion barrier layer 31/31A must be electrically conductive. Otherwise, an insulative barrier layer would frustrate the intended purpose of providing a capacitor cell unit by disconnecting pad electrode 24 from first electrode layer 32/32A.

Also, column 5, lines 31-33 of Park states that suitable materials for diffusion barrier layer 31 include titanium nitride and ruthenium oxide, both known to those of ordinary skill as electrically conductive materials. Reference to Richard J. Lewis, Sr., Hawley's Condensed Chemical Dictionary 1105 (2001), indicates titanium nitride as exhibiting a low electrical resistivity of 21.7 micro-ohm-cm, placing it clearly within the range of conductive materials. Ruthenium oxide does not contain nitrogen and is not considered to be a nitride.

Accordingly, Applicant asserts that Park fails to disclose the claimed insulative nitride layer since it is impossible for dielectric barrier layer 31/31A of Park to be an insulative nitride without frustrating the intended purpose of Park. Also, Park fails to disclose any insulative nitride material as suitable for diffusion barrier layer 31/31A. Thus, Park fails to disclose every limitation of claim 6. Park does not suggest and the Office Action fails to allege that Park suggests modification of diffusion barrier layer 31/31A to provide the claimed insulative nitride layer. At least for such reasons, claim 6 is patentable over Park in view of Bhattacharyya.

Claims 7 and 12 depend from claim 6 and are patentable at least for such reason as well as for the additional limitations of such claims not

disclosed or suggested. For example, claim 12 sets forth that the nitride layer contains silicon nitride. Park does not disclose or suggest and the Office Action does not allege that Park discloses or suggests an insulative nitride layer contains silicon nitride. Page 4 of the Office Action alleges disclosure of the subject matter of claim 12 in column 7, lines 1-6 of Park. However, review of the referenced text fails to reveal support for the allegation. Consequently, claim 12 is further patentable.

Claim 56 sets forth a capacitor construction forming method that includes, among other features, forming an insulative nitride layer, forming a first electrode over the nitride layer, forming a capacitor dielectric over the first electrode, and forming a second electrode over the capacitor dielectric. As may be appreciated from the discussion above regarding the deficiencies of Park in view of Bhattacharyya as applied to claim 6, the cited art fails to disclose or suggest every limitation of claim 56.


Applicant herein establishes adequate reasons supporting patentability of claims 6, 7, 12, and 56 and requests allowance of all pending claims in the next Office Action.

Applicant previously filed an IDS and Form PTO-1449 on July 21, 2003. Applicant also filed a Supplemental IDS, including Form PTO-1449, on December 21, 2005. Applicant has not received the initialed copies of the forms indicating consideration of the cited references. The Office's Image File Wrapper indicates that the Office received the two subject IDS

documents. Applicant requests return of the initialed forms with the next Office Action.

Respectfully submitted,

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